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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/966,043	09/28/2001	Scott R. Grodevant	ML-0518CV	4278

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KENNETH J. LUKACHER
SOUTH WINTON COURT
3136 WINTON ROAD SOUTH, SUITE 301
ROCHESTER, NY 14623

EXAMINER

HENN, TIMOTHY J

ART UNIT	PAPER NUMBER
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2622

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	03/22/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

09/966,043

Applicant(s)

GRODEVANT, SCOTT R.

Examiner

Timothy J. Henn

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 January 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-22 and 25-38 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-9, 25, 26, 35 and 38 is/are allowed.
- 6) ☒ Claim(s) 10-14, 21, 22, 27, 28, 32-34, 36 and 37 is/are rejected.
- 7) ☒ Claim(s) 15-18 and 31 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 16 November 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Response to Arguments

1. Applicant's arguments filed 29 January 2007 have been fully considered but they are not persuasive. Applicant has amended the claims to require an imaging system which detects a section of an image in which the "section is capable of being below the surface of said object". The examiner notes that the limitation "capable of" is a very broad and notes that any imaging system is "capable of" imaging a section of an object below the surface of the object if the surface of the object is transparent or translucent. Since the claims as written place no limitations on the surface of the object being imaged, imaging a transparent or translucent object is considered to be within the scope of the claims. Therefore, the imaging systems of Cline and Fossum are "capable of" imaging a section of an object in the manner claimed.
2. Regarding claims 12 and 13 Applicant argues that the recited limitations of confocal imaging are not intended use limitations. However, the claims as written do not specifically require confocal imaging and instead broadly require adapting the imaging system for confocal imaging or imaging optics which "represent" confocal imaging systems. These limitations do not explicitly require a confocal imaging system and instead require an imaging system which can be used with confocal imaging or an imaging system with optics that can be used in a confocal imaging system (i.e. intended use). If the Applicant wishes these claims to require a confocal imaging system it is suggested that the claims be rewritten to explicitly do so.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 10-14, 21, 27 and 28 are rejected under 35 U.S.C. 102(e) as being anticipated by Cline et al. (US 6,462,770).

[claim 10]

Regarding claim 10, Cline discloses a system for imaging an object (the examiner notes that an object inherently has at least one surface as claimed) comprising: a source for illumination (Figure 1, Item 36); optics for scanning the illumination to the object (Figure 2, ENDOSCOPE ILLUMINATION GUIDE) and receiving returned illumination representing at least one section of the object (Figure 6, MIRROR 186 and various LENS); means for detecting the returned illumination and forming a signal representative of an image of the section of the object (Figure 6); means for displaying the image of the second of the object in accordance with said signal (Figure 1, Item 54; c. 5, l. 66 - c. 6, l. 1); and means for automatically controlling the intensity of the illumination source in accordance with a characteristic of the displayed image (c. 5, ll. 18-22; c. 7, ll. 11-15). The imaging system of Cline captures

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visible light from an object being imaged. The examiner notes that the imaging system is therefore inherently "capable of" capturing an image of a section of the object which is below the surface of the object assuming that the object's surface is transparent or translucent.

[claim 11]

Regarding claim 11, Cline discloses adjusting the illumination source based on the intensity (i.e. brightness) of the image (e.g. c. 7, l. 11 - c. 10, l. 35).

[claims 12-14]

Regarding claims 12-14, these claims are written as intended use and the applicant is reminded that apparatus claims must differentiate from the prior art in terms of structure rather than function (see MPEP §2114).

[claim 21]

Regarding claim 21, Cline discloses displaying and recording video outputs from the imaging device and controlling the illumination source based on the output of image signals. Therefore, the illumination must be enabled for successive images, and the successive images would be affected by the changes in the illumination source by the AGC circuit.

[claims 27 and 28]

Claims 27 and 28 are method claims corresponding to apparatus claims 10 and 11. Therefore, claims 27 and 28 are analyzed and rejected as previously discussed with respect to claims 10 and 11.

5. Claims 32-34, 36 and 37 are rejected under 35 U.S.C. 102(b) as being anticipated by Fossum et al. (US 6,906,745).

[claim 32]

Regarding claim 32, Fossum discloses an automatic gain controller comprising: a first counter for counting the number of pixels of each frame which have a value above an upper threshold to provide a first value (Figure 1, Figure 2, Step 202); a second counter for counting the number of pixels of each frame of the image which have a value below a lower threshold to provide a second value (Figure 1, Figure 2, Step 210); a first comparator for comparing the first value with a third value (Figure 2, Step 202); a second comparator for comparing the second value with a fourth value (Figure 2, Step 210); and a circuit coupled to the first and second comparators for logically comparing the first value with the third value and comparing the second value with the fourth value and based on the results of the comparisons providing one or more signals for increasing or decreasing the gain (Figure 2). The imaging system of Fossum captures visible light from an object being imaged. The examiner notes that the imaging system is therefore inherently "capable of" capturing an image of a section of the object which is below the surface of the object assuming that the object's surface is transparent or translucent.

[claim 33]

Regarding claim 33, Fossum discloses third and fourth values which represent percentages of the total number of pixels (Figure 2, steps 202 and 210).

[claim 34]

Regarding claim 34, Fossum discloses a system in which a frame of pixels is counted, therefore the system of Fossum inherently enables counting over a region of pixels less than the entire frame of each of the images. The examiner notes that claim 37 does not limit the AGC system to count only the pixels in a region less than the entire frame and to not count pixels outside the region.

[claim 36]

Regarding claim 36, Fossum discloses an automatic gain controller for an apparatus capable of producing successive frames of images (Figure 1), wherein each of the frames has pixels having a brightness value, said automatic gain controller comprising circuitry for counting at least the number of pixels of each frame of the image having a brightness value above an upper threshold to provide a first value (Figure 2, Step 202) and the number of pixels of each frame of each image which have a brightness value below a lower threshold to provide a second value (Figure 2, Step 210), in which the gain is controllable in accordance with at least the first and second values (Figure 2).

[claim 37]

Regarding claim 37, Fossum discloses a system in which a frame of pixels is counted, therefore the system of Fossum inherently enables counting over a region of pixels less than the entire frame of each of the images. The examiner notes that claim 37 does not limit the AGC system to count only the pixels in a region less than the entire frame and to not count pixels outside the region.

Claim Rejections - 35 USC § 103

6. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

7. Claim 22 is rejected under 35 U.S.C. 103(a) as being unpatentable over Cline et al. (US 6,462,770) in view of Fossum et al. (US 6,907,745).

[claim 22]

Regarding claim 22, Cline discloses an automatic gain controller for an imaging system which has an illumination source, wherein the automatic gain controller controls the illumination source based on image data (e.g. Figure 2). However, Cline does not disclose counting the number of pixels which are bright and dim in order to control the illumination source based on the count. However, Cline does disclose counting pixels above a threshold and further discloses that other counts can be maintained to obtain more detailed information on the distribution of the video signal amplitudes (c. 8, l. 64 - c. 9, l. 3). The imaging system of Cline captures visible light from an object being imaged. The examiner notes that the imaging system is therefore inherently "capable of" capturing an image of a section of the object which is below the surface of the object assuming that the object's surface is transparent or translucent.

Fossum discloses an AGC system which maintains counters for pixels above and below thresholds and uses the counts to increase or decrease a gain of the system accordingly (Figure 2). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to add a count for pixels below a threshold

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(i.e. dim pixels) in the system of Cline to allow the system to easily increase or decrease the gain according to the number of pixels above or below corresponding thresholds.

Allowable Subject Matter

8. Claims 1-9, 25, 26, 35 and 38 are allowed.

[claims 1-7, 25 and 26]

Regarding claims 1-7, 25 and 26 the prior art does not teach an automatic gain controller or method for automatic gain control wherein a frame of image data is received, counts of pixels which fall above or below thresholds are created and if the number of pixels above a first threshold is greater than a third value and the number of pixels below a second threshold is greater than a fourth value the power to a illumination source is reduced and if the number of pixels above a first threshold is less than a fourth value and the number of pixels below a second threshold is less than third value the power to a illumination source is increased as claimed.

[claims 8 and 9]

Regarding claims 8 and 9 the prior art does not teach an automatic gain controller for an imaging system which counts the number of pixels above an upper threshold, counts the number of pixels below a lower threshold and counts the total number of pixels and adjusts an illumination source in accordance with the resulting counts. While it is known in the art to use counts of pixels above and below thresholds and to compare these counts with threshold representing a percentage of the total count of pixels (i.e. Fossum), these systems do not actively count the number of pixels in the

image and instead rely on stored percentage thresholds.

[claim 35 and 38]

Regarding claims 35 and 38 the prior art does not teach an automatic gain controller or method for automatic gain control wherein a frame of image data is received, counts of pixels which fall above or below thresholds are created and if the number of pixels above a first threshold is greater than a third value and the number of pixels below a second threshold is greater than a fourth value the gain is reduced and if the number of pixels above a first threshold is less than a fourth value and the number of pixels below a second threshold is less than third value gain is increased as claimed.

9. Claims 15-18 and 31 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

[claims 15-18 and 31]

Regarding claims 15-18 and 31 the prior art does not teach an automatic gain controller for an imaging system which counts the number of pixels above an upper threshold, counts the number of pixels below a lower threshold and counts the total number of pixels and adjusts an illumination source in accordance with the resulting counts. While it is known in the art to use counts of pixels above and below thresholds and to compare these counts with threshold representing a percentage of the total count of pixels (i.e. Fossum), these systems do not actively count the number of pixels in the image and instead rely on stored percentage thresholds.

Conclusion

10. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Timothy J. Henn whose telephone number is (571) 272-7310. The examiner can normally be reached on M-F 9:00 AM - 6:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vivek Srivastava can be reached on (571) 272-7304. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

TJH
3/17/2006



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